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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
Docket No. 13148US02**

IN THE APPLICATION OF:

Arthur J. Carlson

SERIAL NO.: 09/882,100

FILED: June 15, 2001

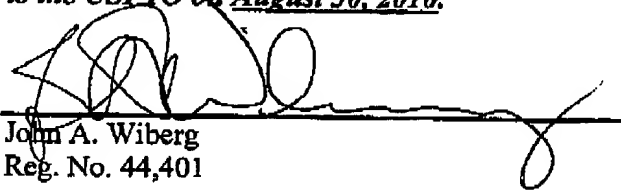
FOR: METHOD OF INTELLIGENTLY
RESTRICTING SYMBOL SIZE IN
ADSL MODEMS

ART UNIT: 2611

EXAMINER: Jason M. Perilla

Conf. No.: 7713

*This Appeal Brief is being facsimile transmitted
to the USPTO on August 30, 2010.*


John A. Wiberg
Reg. No. 44,401

BRIEF ON APPEAL

Mail Stop: Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from an Office Action dated December 2, 2009, in which claims 1-22 were finally rejected.

REAL PARTY IN INTEREST

Broadcom Corporation, a corporation organized under the laws of the state of California, and having a place of business at 5300 California Avenue, Irvine, California 92617, has acquired the entire right, title and interest in and to the invention, the application, and any and all patents to be obtained therefor, as set forth in the Assignment recorded at Reel 012204, Frame 0771 in the PTO assignment search room.

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RELATED APPEALS AND INTERFERENCES

There currently are no appeals pending regarding related applications.

STATUS OF THE CLAIMS

Claims 1-22 are pending in the present application. Pending claims 1-22 stand rejected and are the subject of this appeal.

STATUS OF THE AMENDMENTS

None.

SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 is directed to a method of restricting symbol size in an ADSL system. Pursuant to said method, during initialization, a data rate is obtained. This data rate is then compared to a threshold. If the data rate is above the threshold, symbols are formed using a multiple of a predetermined number of bits per symbol. If the data rate is below the threshold, symbols are allowed to be formed using any integer number of bits per symbol.

The invention of claim 1 is illustratively described in the Specification of the present application at, for example, page 8, line 11 – page 12, line 28, referring to Figures 4-9. For example, Figure 4 is a flowchart representing the method of claim 1. Referring to FIG. 4, block 401 shows that, during initialization, a data rate is obtained.¹ At block 403, this data rate is then compared to a threshold.² At block 405, if the data rate is above the threshold, symbols are formed using a multiple of a predetermined number (eight) of bits per symbol.³ At block 407, if the data rate is below the threshold, symbols are allowed to be formed using any integer number of bits per symbol.⁴ The invention of

¹ Specification, page 8, lines 12-14.

² Specification, page 8, lines 14-16.

³ Specification, page 8, lines 16-17.

⁴ Specification, page 8, lines 17-20.

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claim 1 is also described in other parts of the application, such as in the Summary of the Invention section.

Claims 2-6 and 21 are dependent upon claim 1.

Claim 7 is also directed to a method of restricting symbol size in an ADSL system. Pursuant to the method of claim 7, a data rate is obtained during initialization. This data rate is compared to a threshold. If the data rate is above the threshold, a message to choose a symbol size that is a multiple of a predetermined number of bits per symbol is transmitted. If the data rate is below the threshold, a message without restriction as to the size of symbols is transmitted.

The invention of claim 7 is illustratively described in the Specification of the present application at, for example, page 8, line 11 – page 12, line 28, referring to Figures 4-9. For example, Figure 7 is a flowchart representing the method of claim 1. Referring to FIG. 7, block 701 shows that, during initialization, a data rate is obtained.⁵ At block 703, this data rate is then compared to a threshold.⁶ At block 705, if the data rate is above the threshold, a message is sent to the remote transceiver to choose a symbol size that is a multiple of a predetermined number (eight) of bits per symbol.⁷ At block 707, if the data rate is below the threshold, a message without restriction as to the size of symbols is transmitted to the remote transceiver.⁸ The invention of claim 7 is also described in other parts of the application, such as in the Summary of the Invention section.

Claims 8-12 and 22 are dependent upon claim 7.

Claim 13 is directed to an ADSL modem system comprising first and second modems. The first modem has a first transmitter and a first receiver. The second modem has a second transmitter and a second receiver. The second modem estimates a maximum receive data rate of the second modem and compares it to a threshold. If the maximum receive data rate is above the threshold, the second transmitter transmits a message to the first receiver that instructs the first transmitter to transmit data using a pre-selected number of bits per symbol. If the maximum receive data rate is below the threshold, the second transmitter transmits a message to the first receiver that instructs the

⁵ Specification, page 9, line 30 – page 10, line 1.

⁶ Specification, page 10, lines 1-2.

⁷ Specification, page 10, lines 7-9.

⁸ Specification, page 10, lines 10-13.

first transmitter that it is free to transmit data using any integer number of bits per symbol.

The invention of claim 13 is illustratively described in the Specification of the present application at, for example, page 5, line 2 – page 7, line 2, referring to Figures 2 and page 8, line 11 – page 12, line 28, referring to Figures 4-9. Figure 1 is a block diagram of an ADSL modem system that may be used in connection with the present invention.⁹ Referring to FIG. 1, ADSL modem system comprises first modem 111 and second modem 101.¹⁰ The first modem 111 has a first transmitter 115 and a first receiver 114.¹¹ The second modem 101 has a second transmitter 105 and a second receiver 103.¹² The second modem 101 estimates a maximum receive data rate of the second modem 101 and compares it to a threshold.¹³ If the maximum receive data rate is above the threshold, the second transmitter 105 transmits a message to the first receiver 114 that instructs the first transmitter 115 to transmit data using a pre-selected number of bits per symbol.¹⁴ If the maximum receive data rate is below the threshold, the second transmitter 105 transmits a message to the first receiver 114 that instructs the first transmitter 115 that it is free to transmit data using any integer number of bits per symbol.¹⁵

Claims 14-20 are dependent upon claim 13.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

I. Claims 1-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Applicant's admitted prior art, in view of Hardy III. (U.S. Patent 5,781,598).

⁹ Specification, page 5, lines 2-3.

¹⁰ Specification, page 5, lines 3-6.

¹¹ Specification, page 5, lines 10-11.

¹² Specification, page 5, lines 6-7.

¹³ Specification, page 5, lines 15-23.

¹⁴ Specification, page 10, lines 7-9.

¹⁵ Specification, page 10, lines 10-13.

ARGUMENT

I. Claims 1-22 are not obvious under 35 U.S.C. § 103(a) in view of the Applicant's admitted prior art and Hardy III (U.S. Patent 5,781,598).

In the final Office Action of August 15, 2008, the Examiner rejected claims 1-22 under 35 U.S.C. § 103(a) as being unpatentable over the Applicant's admitted prior art, in view of Hardy III. (U.S. Patent 5,781,598).

35 U.S.C. 103(a) states:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

The Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), laid out the standard of patentability to be applied in obviousness rejections, stating:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art references.¹⁶ Additionally, in order to establish *prima facie* obviousness by combining two or more references, there must have been, at the time the invention was made by the applicant, some suggestion or motivation to combine the references.¹⁷ The teaching or suggestion to make the claimed combination must be found in the prior art, and not based on the applicant's disclosure.¹⁸ The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.¹⁹

¹⁶ *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

¹⁷ *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006).

¹⁸ *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

¹⁹ See MPEP § 2142, citing, e.g., *In re Rinehart*, 531 F.2d 1048 (CCPA 1976).

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR International Co. v. Teleflex Inc.*, noted that the analysis supporting a rejection under 35 U.S.C. § 103 should be made explicit.²⁰ The Federal Circuit has stated that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."²¹

Claim 1 is directed to:

1. A method of restricting symbol size in an ADSL system comprising:
 - obtaining a data rate during initialization;
 - comparing the data rate to a threshold;
 - forming symbols using a multiple of a predetermined number of bits per symbol if the data rate is above the threshold; and
 - allowing symbols to be formed using any integer number of bits per symbol if the data rate is below the threshold.

The Examiner contends that the Applicant's admitted prior art teaches "obtaining a data rate during initialization," per claim 1, at page 2, lines 4-9, which reads, "As an alternative, it has been proposed in forthcoming revisions to the current standards that the total number of bits, L, per symbol be allowed to be any integer (i.e. arbitrary), rather than simply a multiple of 8. While this proposed alternative addresses the excess data carrying capacity problem mentioned above, it introduces its own associated problems." This passage in no teaches "obtaining a data rate during initialization," per claim 1. The Examiner alleges that obtaining a data rate during initialization is somehow inherent in this passage. Appellant strongly disagrees. The Applicant's admitted prior art in no way teaches obtaining the data rate, let alone forming symbols based on the obtained data rate.

The Examiner acknowledges that that the Applicant's admitted prior art does not teach forming symbols based on the data rate. The Examiner asserts that Hardy III teaches "forming symbols using a multiple of a predetermined number of bits per symbol if the data rate is above the threshold; and allowing symbols to be formed using any

²⁰ 82 USPQ2d 1385, 1396 (2007)

²¹ *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), and *KSR v. Teleflex*, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval).

integer number of bits per symbol if the data rate is below the threshold” in the abstract, and at column 3, lines 40-57, and column 4, lines 33-37, as well as in claims 1 and 13. Appellant submits that these cited portions of Hardy III say nothing about “forming symbols using a multiple of a predetermined number of bits per symbol if the data rate is above the threshold; and allowing symbols to be formed using any integer number of bits per symbol if the data rate is below the threshold” per claim 1. The cited excerpts of Hardy III talk about using character mode versus using packet mode. But using character mode versus using packet mode has nothing to do with forming symbols using a multiple of a predetermined number of bits per symbol versus allowing symbols to be formed using any integer number of bits per symbol.

As can be seen above, the combination of the Applicant’s admitted prior art and Hardy III does not teach nor suggest all of the limitations of the present invention as set forth in claim 1. Therefore, claim 1 is not obvious in view of the admitted prior art and Hardy III. Thus Appellant submits that claim 1, and claims 2-6 and 21 depending therefrom, are allowable over the cited art.

Claims 7 and 13 include limitations similar to those included in claim 1 and were rejected only via reference to the rejection of claim 1. Appellant submits that claims 7 and 13, and claims 8-12, 14-20, and 22 depending therefrom, are allowable over the cited art for the reasons set forth above with respect to claim 1.

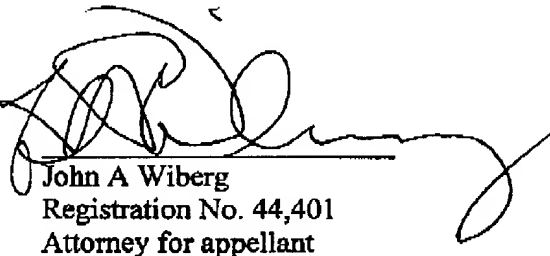
II. Conclusion

For at least the foregoing reasons, Appellant submits that claims 1-22 are allowable over the cited art. Reversal of the Examiner's rejection and issuance of a patent on the application are therefore requested.

The Commissioner is hereby authorized to charge \$540 (to cover the Brief on Appeal Fee) and any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

Dated: August 30, 2010

Respectfully submitted,



John A Wiberg
Registration No. 44,401
Attorney for appellant

McANDREWS, HELD & MALLOY, LTD.
500 West Madison Street, 34th Floor
Chicago, IL 60661
Telephone: (312) 775-8000
Facsimile: (312) 775-8100

APPENDIX

(37 C.F.R. § 1.192(c)(9))

The following claims are involved in this appeal:

1. A method of restricting symbol size in an ADSL system comprising:
obtaining a data rate during initialization;
comparing the data rate to a threshold;
forming symbols using a multiple of a predetermined number of bits per symbol if the data rate is above the threshold; and
allowing symbols to be formed using any integer number of bits per symbol if the data rate is below the threshold.
2. The method of claim 1 wherein the data rate is obtained from a remote location.
3. The method of claim 1 wherein the data rate comprises an estimated maximum receive data rate.
4. The method of claim 1 wherein the threshold is one of approximately 1 Mbits per second or approximately 250 Kbits per second, and wherein the symbols are transmitted using a multiple of 8 bits per symbol if the data rate is above the threshold.
5. The method of claim 1 wherein the threshold is one of approximately 2 Mbits per second or approximately 500 Kbits per second, and wherein the symbols are transmitted using a multiple of 4 bits per symbol if the data rate is above the threshold.
6. The method of claim 1 wherein the threshold is one of approximately 3 Mbits per second or approximately 750 Kbits per second, and wherein the symbols are transmitted using a multiple of 2 bits per symbol if the data rate is above the threshold.
7. A method of restricting symbol size in an ADSL system comprising:

obtaining a data rate during initialization;
comparing the data rate to a threshold;
transmitting a message to choose a symbol size that is a multiple of a predetermined number of bits per symbol if the data rate is above the threshold; and
transmitting a message without restriction as to the size of symbols if the data rate is below the threshold.

8. The method of claim 7 wherein the data rate is obtained from a remote location.

9. The method of claim 7 wherein the data rate comprises an estimated maximum receive data rate.

10. The method of claim 7 wherein the threshold is one of approximately 1 Mbits per second or approximately 250 Kbits per second, and wherein the message is transmitted to choose a symbol size that is a multiple of 8 if the data rate is above the threshold.

11. The method of claim 7 wherein the threshold is one of approximately 2 Mbits per second or approximately 500 Kbits per second, and wherein the message is transmitted to choose a symbol size that is a multiple of 4 if the data rate is above the threshold.

12. The method of claim 7 wherein the threshold is one of approximately 3 Mbits per second or approximately 750 Kbits per second, and wherein the message is transmitted to choose a symbol size that is a multiple of 2 if the data rate is above the threshold.

13. An ADSL modem system comprising:
a first modem having a first transmitter and a first receiver; and
a second modem having a second transmitter and a second receiver, the second modem operable to estimate a maximum receive data rate of the second modem and

compare it to a threshold, the second transmitter transmitting a message to the first receiver that instructs the first transmitter to transmit data using a pre-selected number of bits per symbol if the maximum receive data rate is above the threshold, the second transmitter transmitting a message to the first receiver that instructs the first transmitter that it is free to transmit data using any integer number of bits per symbol if the maximum receive data rate is below the threshold.

14. The ADSL modem system of claim 13 wherein the pre-selected number of bits per symbol is one of a multiple of 8, 4 or 2.

15. The ADSL modem system of claim 14 wherein the threshold is one of approximately 1 Mbits per second or approximately 250 Kbits per second, and wherein the pre-selected number of bits per symbol is 8 if the maximum receive data rate is above the threshold.

16. The ADSL modem system of claim 14 wherein the threshold is one of approximately 2 Mbits per second or approximately 500 Kbits per second, and wherein the pre-selected number of bits per symbol is 4 if the maximum receive data rate is above the threshold.

17. The ADSL modem system of claim 14 wherein the threshold is one of approximately 3 Mbits per second or approximately 750 Kbits per second, and wherein the pre-selected number of bits per symbol is 2 if the maximum receive data rate is above the threshold.

18. The ADSL modem system of claim 14 wherein the second receiver receives a training signal that is used to estimate the maximum receive data rate of the first modem.

19. The ADSL modem system of claim 14 wherein the second modem further has a manager that estimates the maximum receive data rate of the first modem and compares the estimated maximum receive data rate to the threshold.

20. The ADSL modem of claim 14 wherein the first modem further has a manger that configures the first transmitter to transmit data using the pre-selected number of bits per symbol if the maximum receive data rate is above the threshold and that allows the first transmitter to transmit data using any interval number of bits per symbol if the maximum receive data rate is below the threshold.

21. The method of claim 1 wherein the predetermined number is one of 8, 4 and 2.

22. The method of claim 7 wherein the predetermined number is one of 8, 4 and 2.

EVIDENCE APPENDIX

Not applicable.

RELATED PROCEEDINGS APPENDIX

The Appellant is unaware of any related appeals or interferences.